SUMMARY OF THE
FIELD MEASUREMENTS COMMITTEE MEETING
JANUARY 13, 1999

The Field Measurements Committee of the National Environmental Laboratory Accreditation Conference (NELAC) met on Wednesday, January 13, 1999, at 9 a.m. Eastern Standard Time (EST) as part of the Fourth NELAC Interim Meeting in Bethesda, MD. The meeting was led by its chair, Dr. Barton Simmons of the California Environmental Protection Agency (EPA). A list of action items is given in Attachment A. A list of participants is given in Attachment B. *The purpose of the meeting was to update field activity information sources, review the status of the issues paper on NELAC sampling standards, discuss field measurements and field sampling, review a copy of suggested field measurement activity additions to the standards for On-Site Assessment and Quality Systems(QS), and ask participants to name additional organizations who may need to be aware of this committee's interests and activities.*

INTRODUCTION

The chair opened the meeting by having committee members introduce themselves and present biographical sketches. The chair then gave an overview of the committee=s history, called attention to the contents of three handouts, and reviewed the session agenda and action items.

FIELD ACTIVITIES REFERENCES

Participants were asked to add to the list of references for field standards. Several responses were made. Many pertinent American Society for Testing and Materials (ASTM) standards are available. The U.S. Environmental Protection Agency (EPA)/Office of Solid Waste (OSW) chapters 9 and 10 are undergoing revisions and cross-reference many ASTM standards. Dr. Larry Keith said he has placed a simple calculating program called ADQOPro@ on the American Chemical Society (ACS) Website to determine the number of field samples to collect to meet predetermined goals; it is available at http://acs.enb_chem.duq.edu. This topic is also discussed in chapter one of the ACS book *Principles of Environmental Sampling*.

STATUS OF ISSUE PAPER ON NELAC SAMPLING STANDARDS

The chair reviewed the options regarding field sampling given in the Issue Paper distributed to the audience. These have been discussed with the Environmental Laboratory Advisory Board (ELAB) via teleconference. Based on these discussions the committee now proposes to proceed with development of field measurements standards. Field sampling activities will be treated as a separate topic since the committee and ELAB believe that more information needs to be gathered on field sampling from case histories, documentation, and interviews with knowledgeable persons before proceeding.

The floor was opened for discussion of the field measurement and sampling topics. Problems with samples requiring pre-treatment were noted and there is often ignorance of very basic sampling procedures and help with sampling is definitely needed. The question was raised Aat

what point does sampling become a field measurement? An opinion was given that field measurement should be based on the holding time for the sample (e.g, 15 minutes). Another opinion was that all samples must have quality assurance (QA) associated with them. It was stated that the sampling process and holding time considerations are most important and deserve attention and that training is needed in sampling and sample pre-treatment. The committee should look at existing EPA Standard Operating Procedures (SOPs) and other documents (water, air, Resource Conservation Recovery Act [RCRA], etc.) as information sources for training materials. A participant from the State of Florida stated they could provide a list of problems discovered during field audits. Florida questioned the need for Afull@ quality control (QC) samples (spiked samples, duplicates, etc.) in assessing field operations. This approach was tried but was found to be costly and time-consuming. The participant from Florida also asked if auditing would be demanded should implementation of a standard for field measurements occur. The chair replied that it would be an auditable topic but such audits may be conducted by the central laboratory and not by the accrediting authority.

Another audience member mentioned wastewater operator certifications. The liability issue should a self-certification program be used was discussed. The chair said this issue had not been given much consideration but could be looked at by an attorney. The chair saw this as an issue between the contractor and the client. The chair mentioned that revisions to existing standards is one way to bring in field sampling and measurements topics and that these would be discussed for NELAC Standards Chapters 3 and 5 later in the session. A participant stated his belief that this was not the way to go; but that a separate set of standards or a stand-alone chapter should be prepared for sampling. Dr. Simmons said this was one idea under consideration. A United States Geological Survey (USGS) representative stated that any data provided to the public, including field measurements such as pH, needs to be as good as possible and should have a written standard to be followed.

The chair called for additional information such as literature publications and case studies that discuss procedures and problems with sampling. Mr. Llew Williams, EPA, said he believes EPA Region 7 has such information. Some committee members are now collecting examples drawn from practical field sampling experiences. This area is generally not well-documented; sampling plans are often non-existent. It was suggested that searching the records for notices of violations due to improper sampling procedures was one way to uncover examples.

MAJOR ELEMENTS OF A GENERAL SAMPLING STANDARD

The chair listed the committee=s thoughts on what the major elements of a general sampling standard should be, regardless of the matrix sampled. He also asked for audience input. The basic elements are:

- A sampling plan should be present
- SOPs should be available
- A training program should exist (Training should include the supervisor and documentation should be retained to show the training occurred.)
- Deviations from the sampling plan should be documented

- A chain of custody should exist
- Sampling equipment maintenance and decontamination processes should be described (Decontamination is very critical to avoid cross-contamination since component concentrations may vary by orders of magnitude.)
- Use of calibration standards in the field or in the laboratory prior to the field trip should be documented
- Health and safety concerns should be referenced (such as OSHA compliance).

The chair entertained additional discussion. A participant, representing private laboratories in Texas, stated that many of their clients conduct their own sampling. Samples come to them in all sorts of nonstandard containers and conditions. She asked how one might persuade these clients to follow recommended sampling standards and verify that they did. A participant stated there are Aprofessional@ samplers out there and that sampling is an art, especially when dealing with complex matrices. The committee should take note of the experience and knowledge of such persons and not rely solely on statistically-based sampling strategies when a sampling standard is prepared. The chair stated that we must remember that any one sampling plan would not apply to all situations. A committee member suggested that a sampling Atest@ be prepared by organizations and that it be based on their own quality systems. A high score on this test would help ensure that field samplers understand what they are doing and gain experience in correct procedures. A participant made two comments: (1) as development of standards or practices are considered, be sure to note that ASTM or other consensus standards should be adopted when possible, (2) in developing standards or guidance, do not err by being too proscriptive. A guide may be better than a standard in the case of sampling.

Participants were asked to list organizations which are probably involved in field sampling and field measurements which this committee could contact to involve them in NELAC and gain information. Those listed are:

- American Fishery Society (AFS). (Thought to have a Website)
- Water Environment Federation (WEF). (Washington, DC. Thought to have a Website)
- Hazardous Waste Action Committee
- Conference of Radiation Control Directors
- Association of State and Interstate Water Pollution Control Administrators (ASIWPCA). (Washington, DC. Thought to have a web site)

The chair asked if there are existing sampling standards in use by States, etc. that we can build on. Examples cited included drinking water sampling, which the State of Maryland has codified. There are standards established for radon sampling. Forensic laboratory activity extends to field sampling and has standards. It was noted that EPA has published many guidance documents on sampling from various matrices and a Website search may turn up many of these. Fraud investigation studies may also have sampling protocols.

SUGGESTED CHANGES TO THE NELAC STANDARDS

The chair asked Mr. John Hosenfeld to review the suggested changes and additions made to NELAC Standards Chapters 3 and 5 to incorporate field measurement activities. Mr. Hosenfeld asked the committee and participants to keep in mind he is seeking advice and direction from participants and wants to be sure nothing has been overlooked. He stressed that the information he presents may become part of the Standards or could become part of an appendix to an existing chapter or a stand-alone chapter.

CHAPTER 3. ON-SITE ASSESSMENT

Revisions to Chapter 3, On-Site Assessments were first discussed. In Section 3.2.3, commentors asked that training courses for drinking water and biological testing be added under point no. 8 and ambient air be added under point no. 9. In Section 3.5.2, the phrase Amust not interfere with normal operations...@ is too strict. It should be replaced with Acause minimum interference to normal operations...@ Be consistent in the use of the words Atesting@ and Asampling@ in Section 3.5.3. A suggestion was made that section 3.6.4c be omitted. Sample preservation should be mentioned in Sections 3.6.1d and 3.6.4d. Section 3.6.4d should consider the problems associated with hazardous waste.

The auditing approach that might be taken to assess field teams who visit site after site was asked. The chair said there is no exact language on this and the committee will discuss it. The crew leader of the field team would be the key individual to interview during an audit and the same idea would apply to the fixed laboratory. The intent is to ascertain if the organization is in control of all QA activities. A committee member said she believes a system audit approach is the way to proceed with an evaluation. EPA also stresses the quality systems approach. It was also noted that oftentimes a plant or factory to be visited may require several hours of safety training before site entry is allowed to satisfy Occupation Safety and Health Administration (OSHA) requirements and company policy.

ON-SITE ASSESSOR INSTRUCTION MANUAL

Changes to this section were also reviewed by Mr. Hosenfeld. The intent of the revisions is to be more specific from the field activities perspective. It is important that the assessor have the field test plan and examples of past field activities in order to conduct a proper assessment.

Comments on the Instruction Manual

The scope of accreditation has not been discussed and Chapter 1 of the Standards needs to be examined to address this. The committee needs to study the various requirements governing entry to sites and laboratories. Chapter 4 Standards call for on-site assessment of mobile laboratories. This activity also relates to entry requirements and there may be the issue of competition. Better definitions are needed to distinguish between mobile laboratories and field

testing. Performance Based Measurement Systems (PBMS) also need to be incorporated into field activities.

CHAPTER 5. QUALITY SYSTEMS

Suggested revisions to this section were reviewed and comments were called for. The comment was made that NELAC should not designate specific field personnel. NELAC should deal only with the technical director who will make his or her own decision(s) about employee(s) such as the Afield team leader@ or the AQA representative.@

CONCLUDING REMARKS

Comments on the Field Measurement Committee=s suggestions for revisions to other Standards should be sent to Dr. Simmons by February 12, 1999 for committee study and may be e-mailed to him. The committee will try to evaluate the comments and send the suggested revisions on to the other committee chairs by March 1, 1999, in order to meet the April 1st deadline for changes to be included in the NELAC 5 voting process in July. The committee will also look at Appendix D of Chapter 5. A committee member recommended that commentors send their messages via e-mail and utilize the matrix table presented in the Quality Systems meeting.

Dr. Simmons reviewed the action items (see Attachment A) and adjourned the meeting at 12 noon.

Attachment A

ACTION ITEMS
FIELD MEASUREMENTS COMMITTEE MEETING
JANUARY 13, 1999

Item No.	Action	Date to be Completed
1.	Revise list of references (committee)	Ongoing
2.	Continue outreach to other organizations (committee)	Ongoing
3.	Consider comments received on Standards for Chapters 3 and 5 (Dr. Simmons and committee)	March 1, 1999
4.	Review Standards Chapter 1 and decide where scope of field measurements should be placed (Dr. Simmons)	March 1, 1999
5.	Suggest further entries to the Glossary (committee)	April 1, 1999
6.	Schedule discussion of PBMS for field sampling and measurements and revise the language (Simmons)	October 1, 1999
7.	Document problems associated with sampling (participants and committee, to Dr. Simmons)	June 1, 1999
7.	Review Standards Chapter 5, Appendix D (Dr. Simmons and Mr. Hosenfeld)	March 1, 1999
8.	Coordinate with other committees to determine the dividing line between mobile laboratories and field measurements (Dr. Simmons and committee appointees)	March 1, 1999

Attachment B

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FIELD MEASUREMENTS COMMITTEE MEETING
JANUARY 13, 1999

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